

WHAT IS CLAIMED IS:

1. A pharmaceutical composition comprising at least two of agents i) – iii), wherein

agent i) is selected from the group consisting of an insulin, an insulin analog, a physiologically active fragment of said insulin and a physiologically active fragment of said insulin analog,

agent ii) is selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a physiologically active insulin-related peptide fragment and a physiologically active insulin-related peptide analog fragment, and

agent iii) is an insulin sensitizer.

2. The composition of claim 1 wherein said agent i) is an insulin.

3. The composition of claim 2 wherein said insulin is selected from the group consisting of human insulin, porcine insulin and bovine insulin.

4. The composition of claim 1 wherein said agent i) is an insulin analog.

5. The composition of claim 4 wherein said insulin analog is selected from the group consisting of Lys^{B28} insulin, Pro^{B29} insulin and Asp^{B28} insulin.

6. The composition of claim 1 wherein said agent ii) is an insulin-related peptide.

7. The composition of claim 6 wherein said peptide is selected from the group consisting of C-peptide, GLP-1, amylin, IGF-1 and IGF-1 bound to binding protein 3.

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8. The composition of claim 1 wherein said agent iii) is an insulin sensitizer of the glitazone family.

5 9. The composition of claim 1 which is stabilized for administration by a medication infusion pump.

10. The composition of claim 1 comprising agent i) and agent ii).

10 11. The composition of claim 1 comprising about 1.5 to about 40 mg/ml of agent i) and about 1.5 to about 40 mg/ml of agent ii).

12. The composition of claim 10 further comprising a pharmaceutically acceptable non-ionic surfactant.

13. The composition of claim 12 wherein said non-ionic surfactant is a block copolymer of propylene oxide and ethylene oxide.

14. The composition of claim 13 comprising about 1.5 to about 40 mg/ml of agent i), about 1.5 to about 40 mg/ml of agent ii) and an amount of said non-ionic surfactant affording a concentration less than the critical micellar concentration of said composition.

15. The composition of claim 9 further comprising agent iii).

16. The composition of claim 1 comprising agent i) and agent iii).

17. The composition of claim 16 comprising about 0.5 to about 40 mg/ml of agent i) and about 0.05 to about 12 mg/ml of agent iii).

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18. The composition of claim 1 comprising agent ii) and agent iii).

19. The composition of claim 18 comprising about 0.05 to about 12.5 mg/ml of agent ii) and about 0.05 to about 12.5 mg/ml of agent iii).

20. The composition of claim 1 comprising two or more compounds of agents i), ii) or iii).

21. A pharmaceutical composition comprising

i) at least one agent selected from the group consisting of an insulin, an insulin analog, a physiologically active insulin fragment and a physiologically active insulin analog fragment and

ii) at least one agent selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a physiologically active insulin-related peptide fragment and a physiologically active insulin-related peptide analog fragment,

wherein said agent ii) comprises a hydrophobic portion that is coated with a pharmaceutically acceptable non-ionic surfactant.

22. The pharmaceutical composition of claim 21 wherein said non-ionic surfactant is a block copolymer of propylene oxide and ethylene oxide.

23. The pharmaceutical composition of claim 21 further comprising a pharmaceutically acceptable carrier.

24. The pharmaceutical composition of claim 21 further comprising iii) an insulin sensitizer.

25. The composition of claim 21 which is stabilized for administration by a medication infusion pump.

26. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 1.

27. The method of claim 26 wherein said composition is administered to said patient by a medication infusion pump.

28. The method of claim 27 wherein said medication infusion pump is reusable.

29. The method of claim 27 wherein said medication infusion pump is non-reusable.

30. The method of claim 27 wherein said medication infusion pump is implantable.

31. The method of claim 27 wherein said medication infusion pump is externally mountable.

32. The method of claim 26 wherein said composition is administered continually.

33. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 10.

34. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 12.

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35. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 15.

36. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 16.

37. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 18.

38. The method of claim 37 wherein said diabetes is type 2 diabetes.

39. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 20.

40. A method of treating diabetes comprising the step of administering to a patient in need of such treatment the pharmaceutical composition of claim 21.

41. A method of treating diabetes comprising the step of administering to a patient in need of such treatment at least two pharmaceutical compositions a)-c), wherein

composition a) comprises

- i) at least one agent selected from the group consisting of an insulin, an insulin analog, a physiologically active fragment of said insulin and a physiologically active fragment of said insulin analog, and

- ii) a pharmaceutically acceptable carrier,

composition b) comprises

- i) at least one agent selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a

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physiologically active insulin-related peptide fragment and a
physiologically active insulin-related peptide analog
fragment, and

ii) a pharmaceutically acceptable carrier, and

5 composition c) comprises

i) an insulin sensitizer, and

ii) a pharmaceutically acceptable carrier.

42. The method of claim 41 wherein each of said compositions is
10 administered to said patient using a separate delivery device.

43. The method of claim 42 wherein each said delivery device is a medication
infusion pump.

15 44 The method of claim 41 wherein each of said compositions is
administered at a different rate.

45. The method of claim 41 wherein each of said compositions is
administered continually.

20 46. The method of claim 41 wherein compositions a) and b) are administered
to said patient.

47. The method of claim 46 wherein said composition b) further comprises at
25 least one pharmaceutically acceptable non-ionic surfactant.

48. The method of claim 41 wherein compositions a) and c) are administered
to said patient

49. The method of claim 41 wherein compositions b) and c) are administered to said patient

50. The method of claim 41 wherein compositions a), b) and c) are administered to said patient.

51. A method of making a pharmaceutical composition useful in treating diabetes, said method comprising the step of combining at least two of agents i) – iii), wherein

10 agent i) is selected from the group consisting of an insulin, an insulin analog, a physiologically active fragment of said insulin and a physiologically active fragment of said insulin analog,

15 agent ii) is selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a physiologically active insulin-related peptide fragment and a physiologically active insulin-related peptide analog fragment, and

agent iii) is an insulin sensitizer.

20 52. The method of claim 51 wherein said agents are combined with a pharmaceutically acceptable carrier.

53. The method of claim 51 wherein agents i) and ii) are combined.

25 54. The method of claim 52 wherein agents i) and ii) are combined with a pharmaceutically acceptable non-ionic surfactant.

55. The method of claim 51 wherein agents i) and iii) are combined.

56. The method of claim 51 wherein agents ii) and iii) are combined.

57. The method of claim 51 wherein agents i), ii) and iii) are combined.

58. A method of treating diabetes and at least one side effect thereof which comprises the step of administering to a patient in need of such treatment a pharmaceutical composition comprising

a) at least one agent selected from the group consisting of an insulin, an insulin analog, a physiologically active insulin fragment and a physiologically active insulin analog fragment,

b) at least one agent selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a physiologically active insulin-related peptide fragment and a physiologically active insulin-related peptide analog fragment, wherein said agent is effective in treating said side effect, and

c) a pharmaceutically acceptable non-ionic surfactant.

59. A pharmaceutical composition comprising at least two of agents i) – iii), wherein

agent i) is selected from the group consisting of an insulin mimetic material,

agent ii) is selected from the group consisting of an insulin-related peptide, an insulin-related peptide analog, a physiologically active insulin-related peptide fragment and a physiologically active insulin-related peptide analog fragment, and

agent iii) is an insulin sensitizer.

60. The composition of claim 59 wherein said agent i) is a small molecule insulin.

61. The composition of claim 60 wherein the small molecule insulin mimetic material is L-783,281.

5 62. The composition of claim 59 wherein said agent ii) is an insulin-related peptide.

63. The composition of claim 62 wherein said peptide is selected from the group consisting of C-peptide, GLP-1, amylin, IGF-1 and IGF-1 bound to binding protein 3.

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64. The composition of claim 59 wherein said agent iii) is an insulin sensitizer of the glitazone family.

15 65. The composition of claim 59 which is stabilized for administration by a medication infusion pump.

66. The composition of claim 59 comprising agent i) and agent ii).

20 67. The composition of claim 66 further comprising a pharmaceutically acceptable non-ionic surfactant.

68. The composition of claim 67 wherein said non-ionic surfactant is a block copolymer of propylene oxide and ethylene oxide.

25 69. The composition of claim 65 further comprising agent iii).

70. The composition of claim 59 comprising agent i) and agent iii).

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71. The composition of claim 59 comprising two or more compounds of agents i), ii) or iii).

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